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Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Applicati n Number	10/064,413	
	Filing Date	07/11/2002	
	First Named Inventor	Jiunn-Ren Hwang	
	Group Art Unit	1752	
	Examiner Name		
Total Number of Pages in This Submission	7	Attorney Docket Number	NAUP0493USA

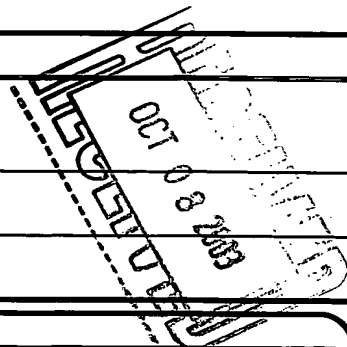
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ENCLOSURES (check all that apply)

<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosure(s) (please identify below):
Remarks		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Winston Hsu, Reg. No.: 41,526
Signature	<i>Winston Hsu</i>
Date	9/29/2003



CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231 on this date: 			
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PTO/SB/17 (01-03)
Approved for use through 04/30/2003. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2003

Effective 01/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 0.00

Complete if Known

Application Number 10/064,413
Filing Date 07/11/2002
First Named Inventor Jiunn-Ren Hwang
Examiner Name
Art Unit 1752
Attorney Docket No. NAUP0493USA

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METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit Account Number 50-0801
Deposit Account Name North America International Patent Office

The Commissioner is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments

☒ Charge any additional fee(s) during the pendency of this application

☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	750	2001	375	Utility filing fee	
1002	330	2002	165	Design filing fee	
1003	520	2003	260	Plant filing fee	
1004	750	2004	375	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	
SUBTOTAL (1)					(\$) 0.00

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims		Extra Claims		Fee from below	Fee Paid
Independent Claims	Multiple Dependent	-20** =	-3** =		
					0.00

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
1202	18	2202	9	Claims in excess of 20
1201	84	2201	42	Independent claims in excess of 3
1203	280	2203	140	Multiple dependent claim, if not paid
1204	84	2204	42	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$) 0.00

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Small Entity

Fee Code	Fee (\$)	Fee Code	Fee (\$)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for ex parte reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	410	2252	205	Extension for reply within second month	
1253	930	2253	465	Extension for reply within third month	
1254	1,450	2254	725	Extension for reply within fourth month	
1255	1,970	2255	985	Extension for reply within fifth month	
1401	320	2401	160	Notice of Appeal	
1402	320	2402	160	Filing a brief in support of an appeal	
1403	280	2403	140	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,300	2453	650	Petition to revive - unintentional	
1501	1,300	2501	650	Utility issue fee (or reissue)	
1502	470	2502	235	Design issue fee	
1503	630	2503	315	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	750	2809	375	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	750	2810	375	For each additional invention to be examined (37 CFR 1.129(b))	
1801	750	2801	375	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 0.00

SUBMITTED BY

(Complete if applicable)

Name (Print/Type) Winston Hsu Registration No. 41,526 Telephone 886289237350
Signature [Signature] Date 9/24/2003

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Jiunn-Ren Hwang, Jui-Tsen Huang,
Chang-Jyh Hsieh

Filing Date: 07/11/2002

Art Unit: 1752

Serial No.: 10/064,413

Docket No.: NAUP0493USA

RECEIVED
SEP 30 2003
GROUP 1700

Title: AN OPTICAL PROXIMITY CORRECTION METHOD

To: Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Subject: Information disclosure statement Under
37C.F.R. §1.56.

Dear Sir:

This is an Information Disclosure Statement in accordance with the duty to disclose information material to patentability under 37 C.F.R. §1.56. Applicant wishes to make of record the document listed on the accompanying form PTO/SB/08. It is respectfully requested that the examiner initials the cited reference on the form and that it be made of record in the application and that a copy of the initialed form be sent to the applicant with the next communication from the examiner.

Since the IDS is filed before the mailing date of

a first Office action on the merits, consideration of the information disclosure statement is hereby requested according to 37C.F.R. §1.97(b). The prior art patent contained in the information disclosure statement was cited in communications from the Taiwan Intellectual Property Office on Jul. 21, 2003. Applicant sincerely hopes that the examiner can consider the item contained in the information disclosure statement.

10

According to the requirement set forth in 37C.F.R. §1.98 and M.P.E.P. 609 (8th edition, Aug. 2001), the applicant is submitting copies of the cited reference (US Patent No. 6,194,252) and a concise explanation of the relevance in this application hereinafter.

15

USPN 6,194,252 discloses a semiconductor device having a semiconductor integrated circuit laid out on a semiconductor substrate based on a basic cell library having basic cells. As shown in Figs. 7A, the basic cell A registered in the basic cell library is characterized in that the dummy wiring pattern 4 is previously formed on the periphery portion of the basic cell A. With this structure, the distance d_0 between the polysilicon gate 3 and the dummy wiring pattern 4 adjacent to the polysilicon gate 3 can be predetermined in the cell. As a result, since the amount of variation in the poly-width due to the optical proximity effect of the polysilicon gate 3 in the basic cell A can be estimated, the correction value by the OPC technique on the mask used for correcting the gate width based on the

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variation amount of the poly-width can be determined only inside the cell. Further, the correction can be previously performed not for each product but for each cell.

5

Claims 1,11 and 19 of the present application are repeated below for reference:

10 "1. An optical proximity correction (OPC) method for reducing optical proximity effect occurring in a pattern transferring process, the method comprising:

providing a photo-mask;

15 providing an original photo-mask pattern predetermined to be formed on a surface of the photo-mask, the original pattern comprising at least one integrated circuit layout and at least one blank region;

20 **forming a plurality of dummy patterns in the blank region, the integrated circuit layout, the plurality of dummy patterns, and the residual blank region together composing a corrected photo-mask pattern; and**

25 **forming the corrected photo-mask pattern on the surface of the photo-mask;**

wherein a phase difference of 180 degrees is detected between a transmitted light of the integrated circuit layout and a transmitted light of the dummy patterns."

30

"11. A method of forming patterns on a surface of a photo-mask, the method comprising:

providing a photo-mask; and
forming an integrated circuit layout on the surface
of the photo-mask, and forming a plurality of
dummy patterns outside the integrated circuit
5 layout on the surface of the photo-mask;
wherein a phase difference of 180 degrees is
detected between a transmitted light of the
integrated circuit layout and a transmitted
light of the dummy patterns."

10

"19. An optical proximity correction (OPC) method for
reducing optical proximity effect occurring in a
pattern transferring process, the method
comprising:

15

providing a photo-mask;
providing an integrated circuit layout
predetermined to be formed on a surface of the
photo-mask;
performing a partial OPC of the integrated circuit
20 layout for obtaining a corrected integrated
circuit layout; and
forming the corrected integrated circuit layout on
the surface of the photo-mask and forming a
plurality of dummy patterns outside the
25 corrected integrated circuit layout on the
surface of the photo-mask."

30


Compared with USPN 6,194,252, the present
application teaches forming a plurality of dummy
patterns in the blank region of the photo-mask.
Additionally, the present application further teaches
that a phase difference of 180 degrees is detected

b tween a transmitted light of the integrated circuit layout and a transmitted light of the dummy patterns. Furthermore, the dummy patterns of the present application are used to reduce the difference in pattern density of the integrated circuit layout for modifying optical proximity effect, and the dummy patterns will not be transferred to the photoresist layer during the photolithographic process.

10 However, the dummy wiring patterns taught in USPN 6,194,252 are designed along the periphery of the basic cell to reduce the CAD processing time. Moreover, the dummy wiring patterns taught in USPN 6,194,252 are transferred to the photoresist layer during the
15 photolithographic process.

Since claims 1, 11 and 19 of the present application are substantially different from the prior art patent USPN 6,194,252, and all other claims are dependent on
20 claims 1, 11 and 19, a quick allowance of the present application is sincerely requested.

Respectfully Submitted,



Date: 9/24/2003

Winston Hsu, Patent Agent No.41,526

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